further clarify and distinguish Applicant's invention over the prior art relied upon by the Examiner in the Final Office Action, in hopes of avoiding an unnecessary appeal process for this case.

Reconsideration of this application is respectfully requested in light of the following remarks.

The rejections of claims 1-6 and 8-13 are insufficient, insofar as they do not comply with the requirements of MPEP 707.07 *et seq.*, which requires that all rejections be stated with completeness and clarity.

MPEP 707.07(d) requires that the grounds of a rejection be "fully and clearly stated." The office action fails to meet this requirement in the present application in connection with the rejections of claims 1-6 and 8-13.

To anticipate a claim, a reference must teach every element of the claim. In this regard, the Federal Circuit has held:

> "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of Califomia*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).
>
> "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Claim 1 is the only independent claim pending in the application. Thus, the limitations of claim 1 are found in all pending claims. In the amendment filed on June 8, 2005, claim 1 was amended to recite a memory device with vertical transistors and trench capacitors, comprising "a diffusion barrier, deposited on one side of the sidewall of the deep trench and between the second conductive layer and the substrate of the deep trench, ***comprising a thermal oxide.***" [Emphasis added]

It is emphasized that the amendment to claim 1 added a ***new limitation***, i.e., that the diffusion barrier comprises a thermal oxide. Support for this amendment can be found on page 8, lines 5-19 and Figs. 6 and 7 of the application.

Applicant notes that original claim 7 recited that the diffusion barrier comprised an oxide, but did not recite that the oxide was a thermal oxide. Thus, a diffusion barrier comprising a ***thermal*** oxide was not found in any of the original claims.

In the final office action, claims 1-6, 9-10, and 12-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Sommer et al. In this regard, the Response to Amendment states:

> Claims 1-6, 9-10, and 12-13 are rejected for the ***same reason*** as set forth in the previous office action.
>
> [Emphasis added, page 2 of the final office action]
>
> Applicant's arguments have been considered but are considered moot ***in view of the new ground for rejection.***
>
> The original claim 7 recites the memory device wherein the diffusion barrier comprises an oxide ***and not a thermal oxide.***
>
> For the above reason, it is believed that the rejections should be sustained. ***Features of an invention not found in the claims can be given no patentable weight in distinguishing the claimed invention over the prior art.***
>
> [Emphasis added, page 3 of the final office action]

Applicant first notes that the rejection of amended claim 1 cannot be for the "same reason" as set forth in the previous office action because ***a new limitation not addressed in the first office action was added in the amendment.*** Namely, the first office action never addressed the limitation that the diffusion barrier comprises a thermal oxide. Thus, the rejection of the

claims in the final office action for the "same reason" cannot establish a *prima facie* case of anticipation, as each and every element of claim 1 is not addressed.

What is more, in the previous office, the Examiner admits that ***Sommer et al do not teach the diffusion barrier comprises an oxide*** and relies on Cappelani et al in this regard. Namely, page 5, last paragraph of the office action dated March 8, 2005 reads:

> Regarding to claim 7, Sommer discloses the invention except for the memory device wherein the diffusion barrier comprises an oxide. However, Cappelani teaches ...

This contradicts the position taken by the Examiner in the final office action, wherein claim 1, which recites that the diffusion barrier comprises a thermal oxide, is rejected under 35 U.S.C. 102(e) as being anticipated by Sommer et al. If Sommer et al do not teach that the diffusion barrier comprises an oxide, how can the reference teach that the diffusion barrier comprises a thermal oxide?

Applicant further notes that the office action states that Applicant's arguments have been considered but are considered moot in view of the new ground for rejection. However, there is no "new ground" for rejection to render Applicant's argument "moot" as stated in the office action, as ***the Examiner simply rejected the claims for the "same reason."*** Thus, the final office action fails to respond in any meaningful way to Applicant's amendment of claim 1 and accompanying arguments.

In addition, Applicant notes that the office action states "original claim 7 recites the memory device wherein the diffusion barrier comprises an oxide and not a thermal oxide." This is true, but is not pertinent to the rejections. Original claim 7 recited that the diffusion barrier comprises an ***oxide***. Amended claim 1 recites that the diffusion barrier comprises a ***thermal oxide***. The rejection of claim 7 in the previous office action did not point to any teaching of a thermal oxide in the prior art.

Finally, the office action states that features of an invention not found in the claims can be given no patentable weight in distinguishing the claimed invention over the prior art. This comments in presumably aimed at Applicant's argument that neither Sommer et al nor Cappelani et al,

whether taken alone or in combination, teach or recite a memory device having a diffusion barrier comprising a thermal oxide.

However, the limitation of a diffusion barrier comprising a thermal oxide ***is found in the claims***. Namely, in the amendment filed on June 8, 2005, claim 1 was amended to recite a memory device with vertical transistors and trench capacitors, comprising a diffusion barrier, deposited on one side of the sidewall of the deep trench and between the second conductive layer and the substrate of the deep trench, ***comprising a thermal oxide***.

Applicant therefore submits that the final office action fails to state with completeness and clarity any teaching or suggestion of a diffusion barrier comprising a thermal oxide, as recited in amended claim 1. Applicant further submits that the final office action fails to respond in any meaningful way to Applicant's amendment of claim 1 in the amendment filed on June 8, 2005. Finally, Applicant submits that the Examiner's position in the final office action contradicts his position in the previous office action without explanation.

Withdrawal of the rejections of claims 1-6 and 8-13 is respectfully requested.

Neither Sommer et al nor Cappelani et al, whether taken alone or in combination, teach or recite a memory device with vertical transistors and trench capacitors comprising a diffusion barrier, deposited on one side of the sidewall of the deep trench and between the second conductive barrier and the substrate of the deep trench, comprising a thermal oxide, as recited in claim 1.

As noted above, in the previous office, the Examiner admits that Sommer et al do not teach the diffusion barrier comprises an oxide. Thus, in the rejection of original claim 7, the Examiner relies on Cappelani et al. See page 5, last paragraph of the office action dated March 8, 2005.

Claim 1 as it currently stands recites that the diffusion barrier comprises a thermal oxide. Applicant therefore submits that the Examiner's rejection of claim 1 under 35 U.S.C. 102(e) as being anticipated by Sommer et al fails to meet the *prima facie* requirements for anticipation, namely, that each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.

With respect to a combination of Sommer et al and Cappelani et al, Applicant notes that MPEP 2142 reads in part:

> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

In connection with the third criteria, MPEP 2143.03 goes on the state:

> To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

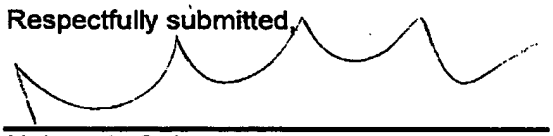
Applicant submits that the limitation that the diffusion barrier comprises a thermal oxide is also not found in Cappelani et al. Namely, Cappelani et al teach an integrated circuit configuration, in which the diffusion barrier may be composed of insulating material. The insulating material may be, for example, SiO2 or silicon nitride. See col. 4, lines 20-23 of Cappelani et al. ***However, the diffusion barrier disclosed by Cappelani et al is not, and cannot be, a thermal oxide.*** As shown in Fig. 2, if the layer S (for formation of the diffusion barrier) were formed by thermal oxidation, a thermal oxide layer would be simultaneously formed over the sidewall (on the left-hand side) of the depression V. As a result, the source/drain region S/Du (buried strap) could not be formed in the subsequent processes because the thermal oxide formed on the sidewall of the depression V bars the dopants in the conductive structure L2 from out-diffusing. Thus, Cappelani et al do not teach or suggest the diffusion barrier is a thermal oxide.

For at least these reasons, it is Applicant's belief that Sommer et al and Cappelani et al, whether taken alone or in combination, fail to teach or reasonably suggest all of the limitations recited in claim 1. Accordingly, Applicant respectfully submits that claim 1 is in condition for allowance. Insofar as claims 2-6 and 8–13 are dependent claims that incorporate the limitations of claim 1, Applicant respectfully requests that these claims also in condition for allowance.

Conclusion

For the reasons described above, the Applicant believes that the application is now in condition for allowance and respectfully requests so.

Respectfully submitted,



Nelson A. Quintero
Reg. No. 52,143
Customer No. 34,283
Telephone: (310) 401-6180

P112514NAQ